

CLAIMS

1. A method of moving a logical entity from a first storage element to a second storage element, the logical entity being capable of being accessed by a plurality of host computers, the method comprising steps of:

creating a copy of the logical entity on the second storage element;

moving all reads of the logical entity from each of the host computers to the second storage element; and

after the step of moving all reads, moving all writes to the logical entity to the second storage element.

2. The method of claim 1, wherein the step of creating comprises a step of establishing a mirror of the logical entity.

3. The method of claim 2, further comprising a step of maintaining the mirror during the step of moving all reads.

4. The method of claim 1, further comprising a step of:  
during the step of moving all reads, passing all writes made to the logical entity at the first storage element to the copy on the second storage element.

5. The method of claim 1, further comprising a step of:  
during the step of moving all writes, passing all writes made to the logical entity at the first storage element to the copy on the second storage element.

6. The method of claim 1, wherein the logical entity is a logical volume.

7. The method of claim 6, further comprising a step of determining an ELVID for the logical volume.

8. The method of claim 1, wherein the logical entity is a conventional logical volume.

9. The method of claim 1, wherein the logical entity is a hyper-volume.

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10. The method of claim 1, wherein the logical entity is a striped volume.

11. The method of claim 1, wherein the logical entity is a partition.

12. The method of claim 1, further comprising a step of determining an ELVID for the logical entity.

13. The method of claim 1, wherein the step of moving all reads comprises a step of updating a translation file, on a host computer that may access the logical entity, which correlates ELVIDs with physical storage locations.

14. The method of claim 1, wherein the step of moving all writes comprises a step of updating translation information stored on a host computer that may access the logical entity, the translation information correlating ELVIDs with physical storage locations.

15. The method of claim 1, further comprising a step of using a storage management controller to manage movement of the logical entity.

16. A host computer comprising:  
a processing unit; and  
a memory interface module to permit accesses to a logical entity to be made to one physical storage location for a read request and to a different physical storage location for a write request.

17. The host computer of claim 16, wherein the memory interface module includes an ELVID interface module to translate requests for access to a logical volume to an ELVID for the logical volume.

18. The host computer of claim 17, wherein the memory interface module includes an ELVID interface module to translate an ELVID to a physical storage location for a logical volume.

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19. The host computer of claim 16, wherein the memory interface module includes an ELVID interface module to translate an ELVID to a physical storage location for a logical volume.

20. A storage management controller for a computer storage system that includes a plurality of storage elements, the storage management controller comprising:  
an interface module to communicate with the storage elements; and  
an entity movement manager to control separate moving of a read location and a write location for a specified logical entity.

21. The storage management console of claim 20, further comprising an ELVID assignment module to assign ELVIDs to logical volumes.

22. The storage management console of claim 20, further comprising an ELVID database to store information for logical volumes including a respective ELVID for each logical volume.

23. A computer system, comprising:  
a plurality of host computers;  
a plurality of storage elements; and  
means for separately moving reads for a logical entity and writes for the logical entity from a first physical storage location on one of the storage elements to a second physical storage location on a different one of the storage elements.

24. The computer system of claim 23, wherein the logical entity is a logical volume.

25. The computer system of claim 24, wherein the means for moving comprises:  
means for creating a copy of the logical entity on the second physical storage location;  
means for moving all reads of the logical entity from each of the host computers to the second physical storage location; and  
means for moving all writes to the logical entity to the second physical storage location, after all of the reads have been moved to the second physical storage location.

26. The system of claim 23, wherein the logical entity is a conventional logical volume.
27. The system of claim 23, wherein the logical entity is a hyper-volume.
- 5 28. The system of claim 23, wherein the logical entity is a striped volume.
29. The system of claim 23, wherein the logical entity is a partition.
30. The computer system of claim 23, wherein the means for moving comprises:  
10 means for creating a copy of the logical entity on the second physical storage location;  
means for moving all reads of the logical entity from each of the host computers to the  
second physical storage location; and  
means for moving all writes to the logical entity to the second physical storage  
location, after all of the reads have been moved to the second physical storage location.

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